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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,302	01/23/2002	Dana Scranton	258/118	7510
34055	7590	04/21/2004	EXAMINER	
PERKINS COIE LLP POST OFFICE BOX 1208 SEATTLE, WA 98111-1208			CHAUDHRY, SAEED T	
			ART UNIT	PAPER NUMBER
			1746	
DATE MAILED: 04/21/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/055,302

Applicant(s)

SCRANTON, DANA

Examiner

Saeed T Chaudhry

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 and 18-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

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## **DETAILED ACTION**

### **Election/Restriction**

Restriction to one of the following inventions is required under 35 U.S.C. 121:

Group I, Claims 1-6, drawn to an apparatus comprising a chamber, a fixture in the chamber and a sonic transducer at one side of the chamber, classified in Class 134, subclass 184.

Group II, Claims 7, 18 and 19, drawn to a method for processing a microelectronic work-piece by contacting with first fluid and contacting with a second fluid and introducing a sonic energy in the contacting steps, classified in Class 134, subclass 1.

Group III, Claims 8-17, drawn to a method for processing a microelectronic work-piece by contacting with first fluid while rotating the work piece and contacting with a second fluid while rotating the work-piece, classified in Class 134, subclass 33.

Group IV, Claims 20-21, drawn to an apparatus comprising an upper rotor engageable with a lower rotor to form a processing chamber, classified in Class 134, subclass 153.

Inventions (II, III) and (I, IV) are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (M.P.E.P. § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process such as storing liquid in the chamber or agitating liquid or mixing two liquid in the chamber and Group I, require a sonic transducer which is not required in Groups III and IV; Group IV requires upper rotor engageable with a lower rotor to form a chamber which is not require for Groups I, II and III; and Groups II and III are different processes wherein Group II requires a sonic energy to be used in the contacting steps while Group III requires immersing the work-piece in the fluid while rotating the work-piece.

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Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, have acquired a separate status in the art because of their recognized divergent subject matter, the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Kenneth Ohriner on March 18, 2004 a provisional election was made without traverse to prosecute the invention of Group III, claims 8-17. Affirmation of this election must be made by applicant in responding to this Office action. Claims 1-7, and 18-21 are withdrawn from further consideration by the Examiner, 37 C.F.R. § 1.142(b), as being drawn to a non-elected invention.

#### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made

The factual inquiries set forth in *Graham v. John Deere Co.*, 148 USPQ 459, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or unobviousness.

**Claims 8-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over**

**Grieger et al in view of Aegerter and Wirth et al.**

Grieger et al (6,100,198) disclose a method for processing a microelectronic workpiece by immersing the microelectronic workpiece in a processing liquid and after immersion step the workpiece is rinse with de-ionized water, after rinsing step an acid etch process is performed with a second suitable solution of hydrofluoric acid, water and tetramethylammonium hydroxide.

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The residue of acid etch is removed by rinsing the workpiece with de-ionized water (see Fig. 1 and col. 2, line 53 to col. 3, line 42). The reference fails to rotate the work piece while immersion and immersing the back side and edge of the work piece while processing with second fluid.

An analogous art, Aegerter et al (6,632,292) disclose a method for processing microelectronic workpiece by placing the workpiece in a chamber and supplying a fluid to expose the back side and the peripheral edge to a first fluid while excluding the front side from exposure to the first fluid; wherein the first fluid is supplied for a sufficient time period to remove the contaminant metal ions from the back side of the workpiece (see claims). The selective exposures of surfaces of the workpiece are made without substantial exposure of the remainder of the second side of the workpiece. While the first fluid is supplied to the first side of the workpiece, the opposing second side of the workpiece may be exposed to no fluid, or may alternately be exposed to a purge fluid such as inert gas or deionized water or to another process fluid (see col. 3, lines 49-56).

Wirth et al (6,511,914) disclose a method of processing a microelectronic work piece by holding the work piece in a horizontal orientation; contacting the workpiece with a bath of liquid; providing sonic energy into the bath of the liquid and rotating the workpiece; wherein the workpiece has a top surface and a bottom surface and where the bottom surface of the workpiece is contacted with a bath (see claims).

It would have been obvious at the time applicant invented the claimed process to incorporate the cited steps of exposing the back side and edge of the workpiece as disclosed by Aegerter et al into the process of Grieger et al for the purpose of only etching one side of the workpiece and while prevent the other side from the etching liquid for over etching the other side

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of the work piece. It would have been obvious to provide vibration by sonic energy and to rotate the work piece while contacting the workpiece with liquid to enhance the process activity as disclosed by Wirth et al. Further, one of ordinary skill in the art would manipulate the vibrator locations to enhance the vibration in the liquid bath. Furthermore, Aegerter et al disclose that any combination of etchant solution can be used for etching the workpiece such as hydrofluoric acid and hydrogen peroxide; sulfuric acid and hydrogen peroxide; or hydrofluoric acid and ozone in an aqueous solution (see claim 18). Therefore, one of ordinary skill in the art would use an etchant as disclosed by Aegerter et al for processing the back side and edge of the workpiece.

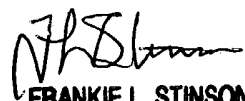
***Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saeed T. Chaudhry whose telephone number is (571) 272-1298. The examiner can normally be reached on Monday-Friday from 9:30 A.M. to 4:00 P.M.***

***If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Randy Gulakowski, can be reached on (571)-272-1302. The fax phone number for non-final is (703)-872-9306.***

***When filing a FAX in Gp 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are for entry into the file of the application. This will expedite processing of your papers.***

***Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1700.***

**Saeed T. Chaudhry**  
**Patent Examiner**  
**April 16, 2004**

  
**FRANKIE L. STINSON**  
**PRIMARY EXAMINER**  
**GROUP 3400-1700**